

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>GB2 2003060 PCT</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/FR2004/001841</b>	International filing date (day/month/year) <b>13.07.2004</b>	Priority date (day/month/year) <b>16.07.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>G02F1/15</b>		
Applicant <b>SAINT-GOBAIN GLASS FRANCE</b>		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>10</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
    - ☐ international search (Rule 12.3 and 23.1(b))
    - ☐ publication of the international application (Rule 12.4)
    - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
  - ☐ the international application as originally filed/furnished
  - ☒ the description:
    - pages 1-15 \_\_\_\_\_ as originally filed/furnished
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☒ the claims:
    - nos. 1-33 \_\_\_\_\_ as originally filed/furnished
    - nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
    - nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☒ the drawings:
    - sheets 1/1 \_\_\_\_\_ as originally filed/furnished
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	5-9, 14, 15, 27, 29-33	YES
	Claims	1-4, 10-13, 16-26, 28	NO
Inventive step (IS)	Claims		YES
	Claims	1-33	NO
Industrial applicability (IA)	Claims	1-33	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)****Novelty and inventive step**

1. The claim does not fulfil the requirements of PCT Article 33(1) because the subject matter thereof is not novel under the terms of PCT Article 33(2).

Document US-A-5 253 100 (**D1**) discloses an electrically controllable device with variable optical/energy transmission or reflection properties [the title], which device is in the form of a single self-supported film [column 3, lines 66 to 68: even though some passages in the description of **D1** refer to two sub-layers 34 and 36, said sub-layers are mutually embedded and thus form only a single physical layer 32] produced using a polymerised mixture of at least a first element providing said mixture with electrochromic properties and at least a second element providing electrolyte properties for ionic charge transport within said mixture [column 3, lines 54 to 57].

2. The subject matter of claims 2 to 4, 10 to 13, 16 to 26 and 28 is not novel either:

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- |                     |   |
|---------------------|---|
| • claim 2:          | see <b>D1</b> , column 3, lines 54 to 57;   |
| • claim 3:          | see <b>D1</b> , column 14, lines 38 to 45 and 59 to 62: a first dense layer of polyaniline is formed on the electrode, then exposed to the aniline/polyelectrolyte solution for the polymerisation thereof;   |
| • claim 4:          | see <b>D1</b> , column 3, line 61;  |
| • claims 10 to 12:  | see <b>D1</b> , column 4, line 41;  |
| • claim 13:         | see <b>D1</b> , column 13, lines 3 and 4;   |
| • claims 16 to 18:  | see <b>D1</b> , column 6, lines 35 to 40 and column 17, lines 8 and 9;  |
| • claims 19 and 20: | see <b>D1</b> , column 17, lines 9 to 12;   |
| • claims 21 to 26:  | see <b>D1</b> , column 2, lines 19 to 28; and   |
| • claim 28:         | <b>D1</b> discloses, for example, a glass sheet and a windscreen that include the device as per claim 1 [see column 2, line 21]. Such a glass sheet or windscreen intrinsically has an additional function, for example, that of thermally insulating the two surfaces of said glass sheet or windscreen. |

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2.	<p>The subject matter of claims 5 to 9, 14, 15, 27 and 29 to 33 does not appear to involve an inventive step under the terms of PCT Article 33(3):</p> <ul style="list-style-type: none"><li>• claim 5: a person skilled in the art seeking alternative compounds to those disclosed in <b>D1</b>, would, as a matter of routine, consider the compounds disclosed in document US-A-2003/099884 (<b>D2</b>). Indeed, said document relates to electrochromic devices [<b>D2</b>, paragraph 0064] and also discloses an active layer that contains poly(3,4-ethylene dioxythiophene) as the electrochromic compound [<b>D2</b>, paragraph 0247];</li><li>• claim 6: in a similar manner, a person skilled in the art would, as a matter of routine, combine <b>D1</b> with document US-A-2002/018281 (<b>D3</b>). Said document discloses an electrochromic device that includes a carbazole-based active medium [paragraph 0045]. Even though said medium is disclosed in its non-polymerised form only, it would appear obvious to a person skilled in</li></ul>

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- claims 7 to 9:

the art that carbazole could also be incorporated into the active medium in its polymerised form.

combining document US-A-2002/103257 (**D4**) with **D1** would appear obvious to a person skilled in the art because **D4** also relates to an electrochromic device [for example, paragraphs 0002 and 0007]. Even though **D4** discloses an active medium that contains two electrochromic materials (a bipyridine salt and a compound based on 5,10-phenazine [paragraphs 0064 and 0065]) in a solution electrolyte, it would be obvious to a person skilled in the art that such electrochromic compounds could also be used in a device in which the electrolyte is polymeric, such as the one disclosed in **D1**;

- claims 14 and 15:

the incorporation of additional compounds in order to enhance the mechanical properties of an electrochromic medium is known from **D3** [paragraph 0031]. The compounds in claim 15 are well

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## • claim 27:

known for their mechanical properties, which are advantageous in the production of organic polymer-based films; a person skilled in the art is aware that the device in **D1** can also be used as a mirror. Such a use is disclosed in, for example, **D3** [paragraph 0005] or **D4** [paragraph 0002]. Since one of the substrates is then coated with a reflective film, it would appear obvious to a person skilled in the art that such a substrate could be opaque or even opacified;

## • claims 29 to 31:

the active medium in the device disclosed in **D1** is produced, *inter alia*, by polymerising the aniline in a solution containing a polyelectrolyte. Even though this is not explicitly disclosed in said document, the polyelectrolyte *per se* must first be polymerised before being put to its final use. However, it is routine knowledge to a person skilled in the art that such a polyelectrolyte can be produced, for example, by heat-polymerising a monomeric-

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form electrolyte in the presence of a polymerisation-initiating agent. Finally, a person skilled in the art is also aware that the final active medium can be produced either by polymerising a solution containing a polyelectrolyte and a monomeric-form electrochromic compound, as disclosed in **D1** [column 12, line 65 to column 13, line 13] or by polymerising a solution containing an electrolyte and an electrochromic compound that are both in monomeric form.

- claim 32: the incorporation of cations such as lithium cations is known from **D1** [column 3, lines 45 to 47]; and
- claim 33: such a charge agent is, for example potassium chloride [see **D1**, column 13, lines 3 to 5].



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Box No. VII      Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

**Defects in the description**

1. Documents **D1 to D4** should be mentioned and discussed briefly in the introduction (PCT Rule 5.1(a)(ii)).
2. The addition of reference signs to the claims would appear to be judicious (PCT Rule 6.2(b)).

## Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**Clarity (PCT Article 6)**

1. The subject matter of **claim 14** is not entirely clear because it contains an unfinished list of polymers. Either said list does not include any polymers other than those cited in said claim, in which case the suspension points should be removed, or said suspension points represent specific polymers, which should therefore be mentioned in this claim.
2. The incorporation of features between parentheses leads to a lack of clarity with regard to the exact scope of **claim 19**.
3. The subject matter of **claim 20** is not entirely clear. Indeed, since the viologen is intrinsically an electrochromic compound, the exact meaning of the expression "an electrochromic or viologen system" is not clear.
4. The method in **claim 29** does not appear to include all of the steps necessary for arriving at the device in claim 1. Indeed, said device always includes a first element that provides electrochromic properties and a second element that provides electrolyte properties to the active medium therein. In claim 29, however, no such first element is mentioned.